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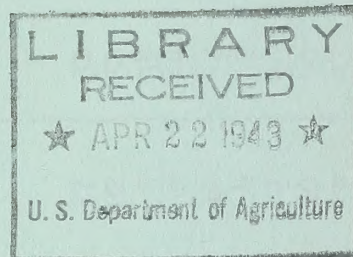
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SNOW SURVEYS AND IRRIGATION WATER FORECASTS

for the

COLORADO RIVER DRAINAGE BASIN

April 1, 1943



Issued by the  
United States Department of Agriculture  
Soil Conservation Service  
Division of Irrigation  
In Cooperation with  
The Colorado Agricultural Experiment Station  
Colorado State College  
Fort Collins, Colorado

April 10, 1943



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SNOW SURVEYS AND IRRIGATION WATER FORECASTS  
for  
COLORADO RIVER BASIN  
April 1, 1943

The following data pertaining to snow surveys and irrigation water-supply forecasts are provided by the Division of Irrigation, Soil Conservation Service, U. S. Department of Agriculture, in cooperation with State departments, other federal bureaus and local organizations. The snow measurements are made principally by field personnel of the following Federal Government organizations: Forest Service, National Park Service, Geological Survey, Bureau of Reclamation, Indian Service; and the Utah Agricultural Experiment Station. This work is otherwise conducted cooperatively with the State Engineers of Utah and Colorado, State Planning Board of Wyoming, U. S. Geological Survey, Utah and Colorado Agricultural Experiment Stations, and various municipalities, irrigation associations, power companies, and others. Precipitation records are supplied by the U. S. Weather Bureau.

SUMMARY OF APRIL 1 SNOW SURVEYS AND COMPARISON OF DATA WITH THAT OF PREVIOUS YEARS BY  
WATERSHEDS

WATERSHEDS	Snow Depth			Water Content			Number Courses in Average	Snow Density			1943 Water Content in percent of	
	Eight Year Avg.*	1942		Eight Year Avg.*	1942			Eight year Avg.*	1943		Eight year Avg.*	1942
		In.	In.		In.	In.			Percent	Percent		
COLORADO RIVER	In.	In.	In.	In.	In.	In.		Percent	Percent			
Green River	40.7	42.9	46.5	12.7	11.4	16.0	27	31	27	34	126	140
Colorado River**	45.0	46.6	45.9	13.8	13.2	14.8	22	31	28	32	107	112
Yampa River	56.8	60.9	57.9	19.3	18.0	21.2	5	34	30	37	110	118
White River	50.3	54.8	44.0	17.2	18.6	14.6	2	34	34	33	85	79
Gunnison River	51.3	57.3	49.6	16.5	17.0	16.8	10	32	30	34	102	99
Dolores River	38.8	40.8	43.1	12.4	11.8	14.8	4	32	29	34	119	125
San Juan River	42.7	43.6	36.9	15.0	14.8	14.2	7	35	34	38	95	96
Gila River	0.4	0.3	0.0	0.2	0.1	0.0	10	50	33	-	-	-
Colorado River***	41.8	52.2	30.9	13.9	16.3	10.4	7	33	31	34	75	64
Virgin River	44.4	45.5	43.3	16.1	14.2	18.1	5	36	31	42	112	127

\*Some for shorter periods

\*\*Above Grand Junction, Colorado

\*\*\*Green to Virgin River







## PRECIPITATION DATA

WATERSHED	STATE	Precipitation October 1 to March 31 Inches	Departure from Normal Inches	Precipitation March Inches	Departure from Normal Inches
Colorado	Colorado	5.45	+0.30	1.16	-0.05
Green	Wyoming	7.93	+3.24	0.96	+0.27
San Juan	New Mexico	4.29	-0.80	1.19	+0.29
Gila	Arizona	4.36*	-0.62*	2.18*	+1.48*
Gila	New Mexico	4.16	-0.99	0.78	-0.02

\*Based on incomplete returns.

In Colorado on the watersheds of the Colorado River and its tributaries the March precipitation was practically normal and from October first last year to date the accumulation was one-third of an inch in excess of the normal. For the Green, in western Wyoming, the March precipitation was one-quarter inch above normal and since last October the excess was  $3\frac{1}{4}$  inches. During March, over the San Juan and Gila watersheds, the precipitation was above normal except the Gila in New Mexico. Since October the rainfall has been below the average for these areas.

## WATER SUPPLY OUTLOOK

COLORADO RIVER AND TRIBUTARIES IN COLORADO. The water content of the snow on the headwaters of these streams averages about 10 percent more than last year at this time and the outlook is quite favorable for a normal run-off. For the Colorado, above Grand Junction, the snow contains about 12 percent more water than a year ago and the expected flow of the river at Glenwood Springs, April-July 1943, will be 1,500,000 acre-feet. For this same period the Roaring Fork will discharge 560,000. On the headwaters of the Colorado, Grand Lake area, the water content exceeds last year by about 25 percent. At Lake Irene on the Trail Ridge Road the snow contains 23 inches of water. On the west side of Loveland Pass the water content is 24 inches, Shrine Pass 22. The outlook for the Blue River drainage is especially good at this time and the run-off will be more than sufficient to fill the Green Mountain Reservoir now nearing completion.

For the Gunnison the run-off will approximate that of last year. The snow on Grand Mesa is less than a year ago by about 20 percent, however at Trickle Divide the snow now contains 25 inches of water. At Crested Butte and Marshall Pass the water content exceeds that of a year ago by 20 and 25 percent respectively. Reservoir filling has been normal during March throughout western Colorado. Taylor Park Reservoir, Gunnison







drainage, will no doubt fill to capacity. Fruit Grower's Reservoir near Cedaredge is now spilling and a number of the small reservoirs and lakes on Grande Mesa will fill. In the Uncompahgre Valley stream flow is normal and soil moisture fair to good. However, March precipitation was subnormal.

On the Yampa watershed the water content of the snow exceeds last year by about 20 percent. At Columbine Lodge, Rabbit Ears Pass, there is 27 inches of water in the snow as compared with 21 inches a year ago. There will be a better-than-average run-off in the Yampa River this season with ample water for all irrigation needs. Small storage reservoirs will be filled. During March the precipitation has been normal, soil moisture good, range conditions good, and stream flow normal over this drainage.

The snow cover on the headwaters of the White is only about  $\frac{3}{4}$  of that a year ago and the run-off this season will be below normal. April storms can materially change the present outlook. During March, near Trapper's Lake, the water content of the snow was increased by 2 inches.

For this section of the state the outlook for the coming season's water supply is generally good. Reservoir storage is now normal with prospects of filling to an amount sufficient to meet the supplemental irrigation requirements during the late season.

SAN JUAN AND DOLORES RIVERS. Snow on the San Juan drainage in southwestern Colorado is practically the same as it was a year ago. On Wolf Creek Pass during March the water content of the snow was increased by about seven inches. On the west side of the Pass the snow now contains 35 inches of water. The run-off in the San Juan this season will be normal or better. The coming April-July flow of the Animas at Durango will approximate 500,000 acre-feet. The outlook for the Dolores has improved during the past month and at present the water content of the snow on this drainage is 25 percent better than a year ago. The run-off this season will be above normal. In the Montezuma Valley area the precipitation during March was above normal and soil moisture conditions excellent, in some places too wet for plowing. The Ground Hog Reservoir now stores 15,000 acre-feet with prospects of filling to the point of full assurance of ample water for this season's irrigation requirements.

GREEN RIVER. The snow pack on the headwaters of this stream, western Wyoming, and eastern Utah, is the greatest in several years and is one and one-half times that of last year at this time. The run-off this coming season will be much in excess of that of last year and will exceed the normal flow of this stream. It is estimated that the April-July, 1943 discharge of the river at Linwood, Utah, will be 1,350,000 acre-feet.

## ARIZONA

GILA RIVER. There is no snow at the lower elevations on this drainage area. On the high mountains, at elevations of 8500 feet or more, the snow depth approximate 3 to 5 feet on the north slopes. Tributary streams are now at the peak of the season-flow resulting from the snow melt at moderate to high elevations and it is expected that this run-off will be of short duration. Soil moisture in the lower areas is poor







to fair, at higher elevations fair to good, and range conditions just fair. San Carlos Reservoir, on the Gila, reached maximum filling of 564,000 acre-feet on March 17. Accumulation for March was about 35,000 acre-feet.

SALT RIVER AND TRIBUTARIES. The present snow cover on the headwaters of these streams is confined to the higher elevations, above 9000 feet. On the north slopes the depths are estimated to vary from 3 to 5 feet. Soil moisture in the higher country is poor to fair and stream flow below normal. Range is dry. Run-off from snow cover will be light. However, at this time the combined flow of the Salt, Tonto and Verde rivers is about 20 percent above normal. The combined reservoir storage on the Salt, March 30th, was 1,566,000 acre-feet or about 95 percent of that of a year ago. The Carl Pleasant Reservoir on the Agua Fria stores about 5000 acre-feet. In the Prescott National Forest the March precipitation was subnormal, soil moisture fair and range conditions fair. The Agua Fria and its tributaries are below normal. Mountains are bare of snow except north slopes. Snow cover is estimated at 10 percent of average as of April first.

VIRGIN RIVER. The snow pack on the Virgin River watershed is greater than last year by 27 percent and exceeds the 8-year average by 12 percent. Runoff is expected to be slightly better than normal.







## COLORADO RIVER WATERSHED

Summary of Federal and State Cooperative Snow Surveys  
Issued April 10, 1943, at Fort Collins, Colorado

No.	Main Drainage and Course	Local Drainage	State	Location		Elev.	National Forest	Apr. 1 Snow Cover Measurements			
				Locality	Description			Av. Snow Depth	Av. Water Content	1942	1943
								In.	In.	1942	1943
<b>GREEN RIVER</b>											
44	East Rim Divide	Fish Creek	Wyo.	13mi. SE. Bondurant	32-37N-111W	7950	Teton	39.9	32.1	54.2	12.3
23	Dutch Joe R.S.	Dutch Joe Cr.	"	12mi. N. Elkhorn	33-31N-104W	8700	Wyoming	30.6	32.8	41.2	8.0
24	Mulligan Park	Surveyor Cr.	"	Fremont Lake	17-35N-108W	8900	"	37.2	32.2	46.8	10.4
25	Kendall R.S.	Green River	"	27mi. NW. Pinedale	23-38N-110W	7900	"	33.3	24.9	53.3	11.9
26	Loomis Park	Beaver Cr.	"	25mi. NW.	14-37N-111W	8500	"	48.2	37.6	68.0	16.2
27	Snyder Basin R.S.	S. Piney Cr.	"	22mi. W. Big Piney	15-29N-114W	8040	"	37.8	33.9	63.3	11.6
28	Piney-LaBarge	LaBarge Cr.	"	24mi. W. Big Piney	19-29N-114W	8820	"	49.2	46.6	71.8	16.3
23	Daniels-Strawberry	Strawberry R.	Utah	20mi. NE. Provo	17&20-2S-12W	8000	Uinta	43.8	43.0	50.8	14.9
28	Lost Lake	Provo River	"	18mi. E. Kamas	4&5-2S-9E	9900	Wasatch	69.8	65.7	91.2	24.9
33	East Portal	Strawberry L.	"	25mi. E. Provo	36-7S-6E	7600	Uinta	37.7	39.6	42.4	13.0
33A	Port. Strawberry D.	"	"	24mi. E. Provo	34&35-7S-6E	8000	"	60.3	56.1	68.0	21.3
34	Hewinta R.S.	West Fork	"	33mi. SE. Evanston	33-3N-13E	9500	Wasatch	34.2	41.2	38.5	9.1
35	Hole-In-Rock	Beaver Cr.	"	47mi. SE.	13-2N-15E	9150	Ashley	24.7	35.7	27.5	5.5
36	Lake Fork Mtn.	Yellowstone Cr.	"	4mi. E. Moon Lake	2&3-2N-5W	10500	"	45.1	56.5	50.3	9.9
37	Paradise Park	Whiterocks R.	"	25mi. NW. Vernal	7-3N-1E	10500	"	42.6	52.3	45.4	11.0
38	Mosby Mtn. #1	"	"	22mi.	5-2N-1E	9700	"	37.2	42.6	42.9	9.8
38A	Mosby Mtn. #2	"	"	"	5-2N-1E	9500	"	34.8	48.4	42.9	8.8
39	King's Cabin #1	Brush Creek	"	18mi. N. Vernal	22-1S-21E	8800	"	35.0	35.7	31.6	9.0
39A	King's Cabin #2	"	"	"	23&26-1S-21E	8600	"	31.5	32.3	31.6	8.5
40	Indian Canyon	Strawberry R.	"	27mi. SW. Duchesne	2-11S-10E	9100	Uinta	36.0	42.2	35.9	9.1
41	Gooseberry Res.	Gooseberry Cr.	"	7mi. NE. Fairview	25-11S-5E	8700	Manti	58.9	63.0	50.8	21.5
42	Mammoth R.S.	"	"	"	13&23-13S-5E	8800	"	63.0	64.7	52.9	23.0
42A	Stahley Ranch	Clear Cr.	"	1mi. N. Scofield	32-12S-7E	7600	Off Forest	16.6	24.3	24.0	4.9
42B	Dry Valley Divide	Fish Creek	"	7mi. NE.	20-12S-8E	7800	"	27.8	34.1	31.5	8.2
42C	Clear Creek	Clear Creek	"	1mi. N. Clear Cr.	28-13S-7E	8150	"	19.2	25.2	24.5	6.8
43	Hntngtn-Horseshoe	Huntington Cr.	"	7mi. E. Fairview	12&13-14S-5E	9800	Manti	76.1	80.4	64.2	27.4
53	Widtsøe Escalante	E. Escalante	"	6mi. E. Widtsøe	22-34S-1W	9500	Powell	28.8	35.3	11.3	9.5
Average for period of record.								40.7	42.9	46.5	12.7
Coverage for period of record.								11.4	12.2	27.1	11.4

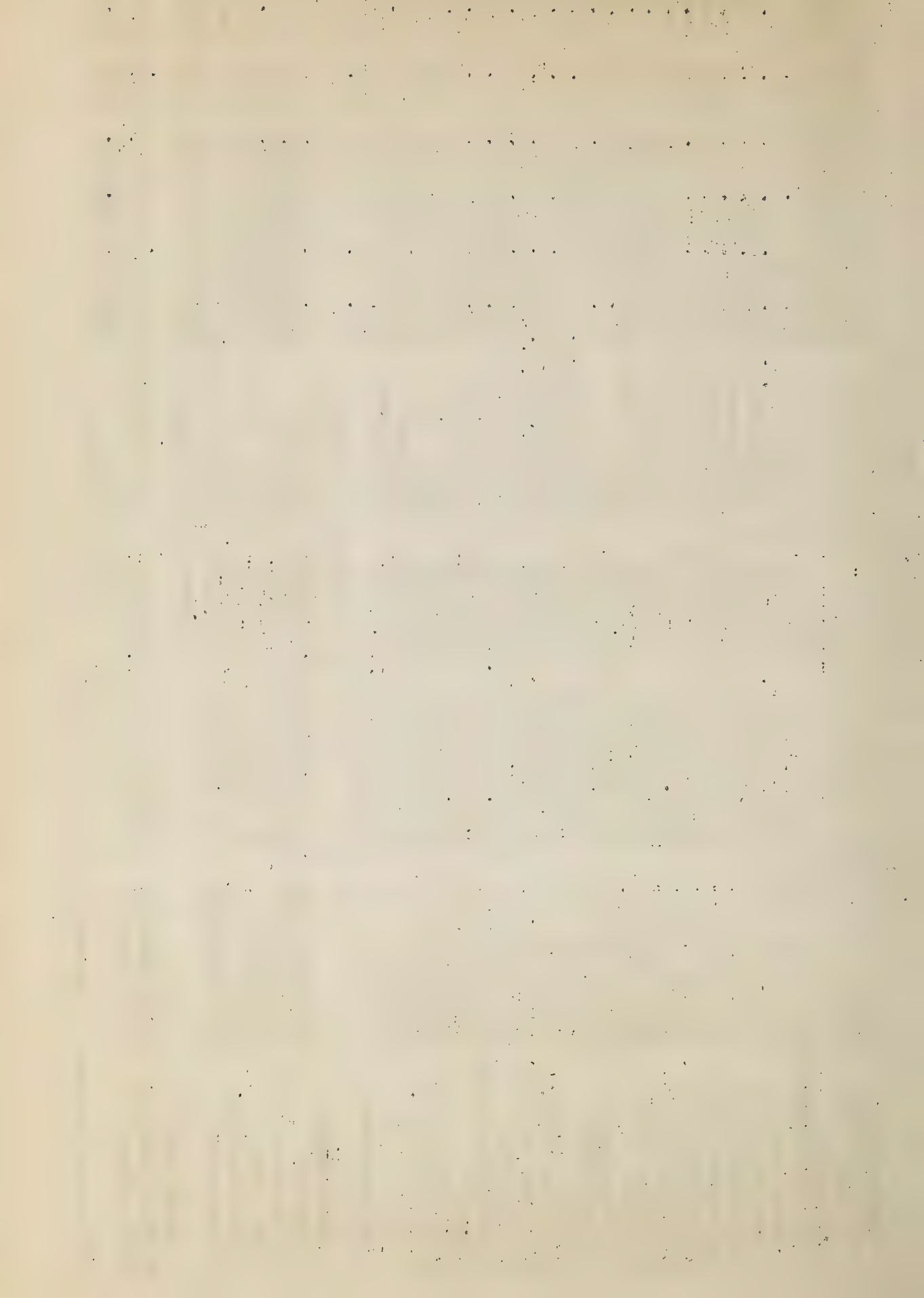




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No.	Main Drainage and Snow Cover	Local Drainage	State	Location		Description	Elev.	National Forest	Apr. 1 Snow Cover Measurements			
									Av. Snow Depth	Av. Water Content	1942	1943
COLORADO RIVER (Above Grand Junction)												
7	Park View*	Willow Cr.	Colo.	7mi. SE. Rand	24-5N-78W	9200	Routt	In. 34.2	In. 34.3	In. 9.7	In. 6.9	
12	Phantom Valley	Colorado R.	"	11mi. N. Grand L.	7-5N-75W	9300	Ry. Mtn. N.P.	33.8	32.6	9.7	9.1	
16	Berthoud Pass	Fraser R.	"	4mi. S. West Port.	35-2S-75W	9700	Arapaho	52.7	50.2	15.9	15.0	
19	Tennessee Pass*	Eagle River	"	Tennessee Pass	21-8S-80W	10200	Cochetopa	36.0	40.1	9.4	11.0	
33	Ind. Pass Tunnel	Lincoln Gulch	"	W. Port. Tunnel	30-11S-82W	10200	Holy Cross	54.0	54.3	18.2	21.1	
34	N. Lost Trail Cr.	Crystal R.	"	3mi. E. Marble	20-11S-87W	9200	"	46.0	44.6	13.7	14.0	
37	M. Fork Camp Cr.	Williams Fk.	"	13mi. N. Dillon	16-3S-77W	9000	Arapaho	35.4	43.4	10.4	11.8	
44	Fiddler Gulch	Eagle River	"	2mi. E. Mitchell	1-8S-80W	11000	Holy Cross	51.8	54.2	14.5	17.5	
45	Nast	Frying Pan R.	"	23mi. SE. Basalt	1-9S-83W	8700	"	21.7	22.4	6.1	4.5	
54	Maroon Lake	Maroon Creek	"	8mi. SW. Aspen	7-11S-85W	9300	"	41.5	49.4	13.3	15.4	
56	Mesa Lakes	Mesa Creek	"	15mi. E. Palisade	35-11S-96W	10000	Grand Mesa	58.3	79.6	23.5	12.8	
59	Lulu	Lulu Creek	"	14mi. N. Grand L.	25-6N-76W	10200	Ry. Mtn. N.P.	53.5	48.2	16.8	20.6	
62	Willow Creek P.	Willow Cr.	"	Willow Cr. Pass	1-4N-78W	9500	Arapaho	43.3	43.7	12.8	11.0	
64	N. Inlet Grand L.	N. Inlet Cr.	"	4mi. NE. Grand L.	26-4N-75W	9000	Ry. Mtn. N.P.	30.4	29.5	8.6	9.2	
65	Lake Irene	Beaver Creek	"	1mi. SW. Milner P.	8-5N-75W	10600	"	63.2	60.9	20.6	23.0	
66	Thunderbolt Peak	Buchanan Cr.	"	5mi. E. Monarch L.	22-2N-74W	9500	Arapaho	52.2	49.3	16.1	19.8	
69	Arrow	S. Ranch Cr.	"	Arrow	34-1S-75W	9900	"	33.3	34.3	9.4	9.9	
70	Lapland	St. Louis Cr.	"	7mi. SW. Fraser	16-2S-76W	9300	"	37.2	39.2	11.2	15.8	
79	Fremont Pass #2	Blue River	"	Fremont Pass	2-8S-79W	11400	"	53.4	57.5	16.7	20.1	
91	Lynx Pass No. 2	Rock Cr.	"	7mi. NE. Toponas	27-2N-83W	9100	Routt	42.8	43.5	13.2	14.0	
96	Shrine Pass	Blue River	"	Shrine Pass	15-6S-79W	10500	Arapaho	58.4	55.5	19.4	22.0	
97	Grizzly Peak	"	"	1mi. W. Loveland P.	2-5S-76W	11250	"	58.0	64.8	18.6	24.1	
					Average for Drainage			45.0	46.6	13.8	14.8	
YAMPA RIVER												
6	Dry Lake	Soda Creek	Colo.	4mi. NE. Steam Spgs.	26-7N-84W	8200	Routt	57.9	60.9	20.5	22.5	
8	Columbine Lodge*	Harrison Cr.	"	Rbt. Ears Pass	21-5N-82W	9300	"	64.4	72.0	22.2	26.9	
9	Elk River	Independence Cr.	"	Columbine	6-10N-85W	8700	"	53.4	76.3	16.4	17.3	
91	Lynx Pass No. 2*	Morrison Cr.	"	7mi. NE. Toponas	27-2N-83W	9100	"	42.8	44.4	13.2	14.0	
10	Rambler R.S.	Little Snake R.	Wyo.	13mi. SW. Encampmt	25-14N-86W	8600	Medicine Bow	65.7	64.4	24.3	25.2	
					Average for Drainage			56.8	60.9	19.3	21.2	
WHITE RIVER												
35	Burro Mountain	N. Elk Creek	Colo.	8mi. S. Buford	15-2S-91W	9000	White River	54.9	61.3	18.9	13.0	
36	Rio Blanco	White River	"	4mi. NW. Trappers L.	28-1N-88W	8500	"	45.7	48.3	15.4	16.1	
					Average for Drainage			50.3	44.0	17.2	14.6	

\*On adjacent drainage @Average for period of record





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Main Drainage and Snow Course		Local Drainage	State	Location		Elev.	National Forest	Apr. 1 Snow Cover Measurements					
No.	Snow Course			Locality	Description			Av. Snow Depth	Av. Water Content	Av. Snow Depth	Av. Water Content	Av. Snow Depth	Av. Water Content
GUNNISON RIVER													
18	Crested Butte	Slate River	Colo.	3mi. N. Crested B.	22-13S-86W	9000	Gunnison	In. 45.1	In. 14.0	In. 46.0	In. 15.6	In. 45.1	In. 14.0
42	Marshall Creek	Marshall Cr.	"	Marshall Pass	24-48N-6E	10800	Cochetopa	46.9	11.9	46.2	13.9	46.9	11.9
43	Poncha Creek*	"	"	"	19-48N-7E	10500	"	38.1	10.8	37.2	11.8	38.1	10.8
46	Park Cone	Taylor Creek	"	Taylor Park Res.	19-14S-82W	9700	Gunnison	34.2	8.3	35.5	9.4	34.2	8.3
53	Alexander Lake	Kiser Creek	"	10mi. N. Cedaredge	2-12S-95W	10000	Grand Mesa	72.4	25.4	82.8	24.2	72.4	25.4
55	Snowshoe Mesa	Snowshoe Cr.	"	16mi. NE. Paonia	14-13S-89W	7500	Gunnison	24.2	7.5	30.2	7.5	24.2	7.5
58	Ironton Park	Red Mtn. Cr.	"	5mi. S. Ouray	29-43N-7W	9800	Uncompahgre	44.0	14.8	52.3	14.8	44.0	14.8
85	Trickle Divide	Surface Cr.	"	13mi. N. Cedaredge	23-11S-94W	10000	Grand Mesa	77.9	30.0	94.7	25.8	77.9	30.0
87	Park Reservoir	"	"	11mi. "	34-11S-94W	9500	"	74.3	26.7	88.2	24.1	74.3	26.7
89	Porphyry Creek	Porphyry Cr.	"	Monarch Pass	19-49N-6E	10800	Cochetopa	56.2	17.5	59.8	17.5	56.2	17.5
94	Sunshine Mt. No. 2	Henson Cr.	"	10mi. W. Lake City	35-44N-6W	10200	Gunnison	43.0	12.6	43.0	12.6	43.0	12.6
Average for Drainage								51.3	16.5	57.3	16.5	51.3	16.5
DOLORES RIVER													
23	Rico	Dolores R.	Colo.	2mi. S. Rico	11-38N-11W	8700	Montezuma	30.5	8.8	26.2	8.8	30.5	8.8
24	Telluride	San Miguel R.	"	Telluride	6-42N-8W	8600	"	25.3	8.2	29.3	7.6	25.3	8.2
25	Lizard Head	Dolores R.	"	10mi. N. Rico	24-41N-10W	10300	"	57.4	16.6	58.5	17.7	57.4	16.6
90	Lone Cone	Ground Hog Cr.	"	16mi. N. W. Rico	23-41N-13W	8900	"	41.9	15.3	49.1	15.3	41.9	15.3
Average for Drainage								38.8	12.4	40.8	12.4	38.8	12.4
SAN JUAN RIVER													
26	Wolf Creek Pass*	Wolf Creek	Colo.	Wolf Creek Pass	4-37N-2E	10000	Rio Grande	84.1	29.1	82.9	30.4	84.1	29.1
29	Upper San Juan	"	"	4mi. W. Wolf Cr. P.	10-37N-1E	10000	San Juan	98.4	33.4	93.4	34.6	98.4	33.4
30	Silverton Sub. S.	Animas R.	"	2mi. NE. Silverton	10-41N-7W	9400	"	19.4	5.1	22.8	4.6	19.4	5.1
31	Cascade	Cascade Cr.	"	5mi. N. Electra L.	12-39N-9W	8850	"	33.5	10.3	32.0	10.8	33.5	10.3
93	Granite Peaks	Los Finos R.	"	11mi. NE. Columbus	24-37N-6W	7950	San Juan	24.2	9.6	21.0	11.9	24.2	9.6
17	Chama Divide*	Arango R.	N. Mex.	6mi. W. Chama	36.9N106.7W	7750	Off Forest	8.3	5.1	16.8	2.9	8.3	5.1
18	Chamita*	Navajo R.	"	6mi. N. W. Chama	36.9N106.7W	8500	"	30.9	11.0	36.6	9.8	30.9	11.0
Average for Drainage								42.7	14.8	43.6	15.0	42.7	14.8

On adjacent drainage

\*On adjacent drainage

@Average for period of record











